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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,627	02/07/2001	Arihiro Takeda	1324.6521	9611

24978 7590 04/10/2003

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CHICAGO, IL 60606

EXAMINER

CHUNG, DAVID Y

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 04/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/778,627

Applicant(s)

TAKEDA ET AL.

Examiner

David Y. Chung

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-6 and 8-10 rejected under 35 U.S.C. 102(e) as being anticipated by Yamada et al. (U.S. 6,067,141).

As to claims 1 and 9, Yamada et al. discloses a wide viewing angle liquid crystal display comprising a pair of substrates, liquid crystal having a negative dielectric anisotropy interposed between the pair of substrates, vertical alignment layers formed on surfaces of the pair of substrates in contact with the liquid crystal, and a voltage being applied across the liquid crystal by voltage application means formed on the pair of substrates. See abstract. The liquid crystal layer is divided into a plurality of regions (denoted by numeral 8) in the presence of an electric field as shown in figure 3C. Note the singular point control portions 51 for performing control such at a singular point is formed at center point 8c.

As to claim 2, Yamada et al. discloses a device in which the domains formed in the presence of an electric field have liquid crystal molecules at substantially a 45-degree angle as shown in figure 3A.

As to claim 3, Yamada et al. discloses a device having liquid crystal regions with two different singular points as shown in figure 3C. A first singular point is formed at 8c with liquid crystal molecules directed substantially towards it. A second singular point is formed in the boundaries between adjacent liquid crystal regions with liquid crystal molecules directed in a different direction adjacent to each other. In the presence of an electric field, adjacent domains (denoted by numeral 8a) contain liquid crystal molecules disposed at substantially a 45-degree angle to the imaginary line dividing the two domains as viewed from above.

As to claim 4, Yamada et al. discloses a device having a dark line formed at the boundaries between adjacent domains in the presence of an electric field, as shown in figure 3C.

As to claim 5, Yamada et al. discloses a device having the same distortion of a distribution of an electric field as claimed by the applicant.

As to claim 6, Yamada et al. discloses a device having protrusions 51 formed along an imaginary straight line between a plurality of singular points adjacent to each other, as shown in figure 3C.

As to claim 8, Yamada et al. discloses a device having alignment regulating members 51 disposed substantially parallel to the imaginary straight line connecting adjacent singular points. The liquid crystal molecules on opposite sides of alignment regulating member 51 are substantially at a 90-degree angle with respect to the imaginary line separating the two domains in the presence of an electric field.

As to claim 10, figure 1B of Yamada et al. shows that several of the singular points are formed in regions between adjacent pixel electrodes (denoted by numeral 6). Gate and data bus lines occupy the region between adjacent pixel electrodes.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (U.S. 6,067,141).

As to claim 11, figure 1B of Yamada et al. shows that several of the singular points are formed in regions between adjacent pixel electrodes. The figure does not show singular points in a gap between the pixel electrode and bus line. However, it was well known and obvious that the exact location of the singular points could be adjusted by adjusting the position of the protrusions in order to obtain the desired orientation domains in each pixel. It was well known and obvious to form a singular point in a gap between the pixel electrode and bus line so that the disclination region corresponding to the singular point would be minimized in the pixel area. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form a singular point in a gap between the pixel electrode and bus line in order to minimize disclination in the pixel.

As to claim 12, Yamada et al. discloses a device having liquid crystal regions with two different singular points as shown in figure 3C. See the above discussion regarding claim 3.

3. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (U.S. 6,067,141) in further view of applicant's admitted prior art.

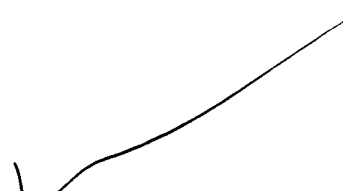
Yamada et al. does not disclose non-electrode regions where no electrode material is formed. However, according to applicant's prior art disclosure, it was well

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known and obvious that separation of alignment can be also achieved by providing slits on the electrodes instead of the linear protrusions. This disclosure is found on page 4 of the specification. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide non-electrode regions having no electrode material for creating separate domains because it was a functionally equivalent alternative to the protrusions disclosed by Yamada.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Chung whose telephone number is (703) 306-0155. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:00 pm.


TOANTON
PRIMARY EXAMINER

David Chung
GAU 2871
04/03/03